

Table 5. Studies of Interventions to Increase Physical Activity Among Adults

Study	Design	Theoretical approach	Population	Intervention	Findings and comments
Individual approaches					
Weber and Wertheim (1989)	3 month experimental	Self-monitoring	55 women who joined a gym; mean age = 27	I-1: Self-monitoring of attendance, fitness exam I-2: Self-monitoring, staff attentions fitness exam C: Fitness exam	I-1 had better attendance than I-2 overall; interest -in self-monitoring waned after 4 weeks
King, Haskell, et al. (1995)	2 year experimental	Behavioral management	269 white adults aged 50-65 years	I-1: Self-monitoring, telephone contact, vigorous exercise at home I-2: Self-monitoring, telephone contact, moderate exercise at home I-3: Self-monitoring, vigorous exercise in group	Better exercise adherence at 1 year in home-based groups; at year 2 better adherence in vigorous home-based group; 5 times per week schedule may have been difficult to follow
Lombard, Lombard, Winett (1995)	24 week experimental	Stages of change	155 university faculty and staff; mostly women	I-1: Weekly calls, general inquiry I-2: Weekly calls, structured inquiry I-3: Call every 3 weeks, general inquiry I-4: Call every 3 weeks, structured inquiry	Frequent call conditions had 63% walking compared with 26% and 22% in the infrequent condition; frequent call and structured inquiry had higher rate of walking than other groups
Cardinal & Sachs (1995)	12 week experimental	Stages of change	113 clerical staff at a university; mean age = 37; 63% black	I-1: Mail-delivered lifestyle packet based on stages of change I-2: Mail-delivered structured exercise packet with exercise prescription C: Mail-delivered fitness feedback packet	No difference in stage of change status among or within groups
Belisle (1987)	10 week quasi-experimental with 3-month follow-up	Relapse prevention	350 people enrolled in, beginning exercise groups	I: Exercise class and relapse prevention training C: Exercise class results across experimental groups	Higher attendance in relapse prevention group over 10 weeks and at 3 months; high attrition and inconsistent
Gossard et al. (1986)	12 week experimental	Behavioral management	64 overweight healthy men aged 40-60 years	I-1: Vigorous self-directed exercise, staff telephone calls, self-monitoring I-2: Moderate self-directed exercise, staff telephone calls, self-monitoring C: Staff telephone calls	Better adherence in the moderate-intensity group at 12 weeks compared with vigorous (96% vs. 90%) (no statistical tests reported); travel, work schedule conflicts, and weather were noted as to physical activity
King, Carl, et al. (1988)	16 week pretest-posttest	Behavioral management	38 blue-collar university employees; mean age = 45	I: 90-minute classes 2 times/week after, work, parcourse, self-monitoring, contests C: None	Twofold increase in bouts of exercise compared with nonparticipants. Participants different from nonparticipants at baseline
King & Frederiksen (1984)	3 month experimental	Relapse prevention, social support, behavioral management	58 college women aged 18-20 years	I-1: Team building, relapse prevention training; group exercise I-2: Team building, group exercise I-3: Relapse prevention training and jogging alone C: Jogging alone	I-2 and I-3 had twice the jogging episodes as I-1 and C at 5 weeks; at 3 months, 83% of I-3 were jogging compared with 38% of I-1 and I-2 and 36% of C
King, Taylor, et al. (1988)	Study 1: 6 month experimental	Relapse prevention, behavioral management	152 Lockheed employees aged 42-55 years	I-1: Home-based moderate exercise, self-monitoring with portable monitor, relapse prevention training, telephone calls from staff I-2: Same as I-1 without telephone calls from staff	No difference in number of sessions and duration reported at 6-month follow-up
	Study 2: 6 month experimental	Behavioral management	Lockheed employees from Study 1	I-1: Daily self-monitoring I-2: Weekly self-monitoring	I-1 had more exercise bouts per month (11 vs. 7.5)
Marcus and Stanton (1993)	18 week experimental	Relapse prevention social learning theory	120 female university employees, mean age = 35	I-1: Relapse prevention training and exercise I-2: Scheduled reinforcement for attendance and exercise	Better attendance in I-1 at 9 weeks; no difference at 18 weeks or 2-month follow-up

McAuley et al. (1994)	5 month experimental	Social learning theory	114 sedentary middle-aged adults	C: Exercise only I: Modeling of exercise, provision of efficacy-based information (mastery accomplishments, social modeling, social persuasion, physiological response), walking program C: Biweekly meetings on health information, walking program	Better class attendance (67% vs. 55%) and more minutes and miles walked among intervention group than controls
Owen et al. (1987)	12 week quasi-experimental	Behavioral management	343 white-collar and professional workers, mean age = 36, mostly women	I: Self-management instruction, exercise class C: Exercise crass	No difference in activity levels at 6 months
Robison et al. (1992)	6 month quasi-experimental	Behavioral management, social support	137 university staff at 6 campus worksites, mean age = 40	I: Weekly group meetings, contracts, cash incentives, social support, exercise C: Exercise, diary	Higher attendance among experimental groups than comparison groups (93-99% vs. 19%)

Community approaches

Luepker et al. (1994) (Minnesota Heart Health Project)	5 to 6 year quasi-experimental; (3 matched pairs)	Diffusion of innovations, social learning theory, community organization, communication theory	Community longitudinal cohort (n = 7,097), Independent survey (n = 300-500)	I: Screening and education; mass media; community participation; environmental change; professional education; youth and adults C: Nothing	Percent physically active higher in independent survey at 3 years; higher in the cohort at 7 years
Young et al. (in press) (Stanford Five-City Project)	7 year quasi-experimental	Social learning theory, communication theory community organization	2 sets of paired, medium-sized cities (5th city used for surveillance only)	I: Print materials; workshops and seminars; organized walking; organized walking events; "Heart & Sole" groups; worksite programs; TV spots	Men increased participation in vigorous activities; men and women in the intervention communities increased their overall number of physical activities; significant differences between intervention and comparison communities at baseline
Macera et al. (1995)	4 year quasi-experimental (2 matched communities)	None specified	Community residents ≥ 18 years; 24% African American (I), 35% African American (C)	I: Community cardiovascular risk reduction activities C: None specified	No difference in physical activity prevalence, physician counseling for exercise, or exercise knowledge
Brownson et al. (1996)	4 year quasi-experimental	Social learning theory, stage theory of innovation	Rural communities; largely African American	I: Community organization; development of 6 coalitions; exercise classes and walking classes and walking clubs; demonstrations; sermons; newspaper articles; community improvements; \$5,000 to each coalition from the state health department	Increased physical activity levels in coalition communities, declining levels in communities without; net effect was 7%. Planned Approach to Community Health education planning model
Marcus, Banspach, et al. (1992) (Pawtucket Heart Health Program: Imagine Action)	6 week pretest-posttest uncontrolled	Stages of change	610 sample of community residents, mean age = 42	Written materials, resource manual, weekly fun walks, and activity nights	Participants more active after intervention with movement toward action and low relapse to earner stage; suggests stage-based community intervention can result in movement toward action; study uncontrolled

Worksites

Blair et al. (1986) (Live for Life)	2 year quasi-experimental	None	4,300 Johnson & Johnson employees	I: Screening, lifestyle seminar; exercise programs; newsletters; contests; health communications; no smoking policies C: Screening only	20% of women and 30% of men began vigorous exercise of 2 years
Fries et al. (1993)	24 month experimental	None	4,712 Bank of America retirees	I-1: Health risk appraisal; feedback letter; behavioral management materials; personalized health promotion program I-2: Health risk appraisal; no feedback; full program in year 2 C: No Intervention	No difference in physical activity year 1 ; I-1 greater physical activity in year 2 over I-2
Heirich et al. (1993)	3 year experimental	None specified	1,300 automobile plant workers	I-1: Fitness facility I-2: Outreach and counseling to high risk employees I-3: Outreach and counseling to all employees C: Health education events	Percent exercising 3 times per week: I-1 = 30%, I-2 = 44%, I-3 = 45%, C = 37%

Communication

Osier and Jespersen (1993)	2 year	Social learning theory,	Rural communities in	I: Heart Week with assessments, health education, weekly	No difference in self-reported physical activity, but intervention
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	quasi-experimental	communications (diffusion of innovations); community organization	Denmark (n = 8,000 [I])	community exercise TV, radio, newspaper community messages C: Not specified	community expressed more interest in becoming active; low response rate to surveys (59%); became mainly a media campaign with little community involvement
Owen et al. (1995)	2 year pretest-posttest	Social learning theory, social marketing theory	2 national physical activity campaigns in Australia	I: Messages to promote walking and readiness to become active; modeling activity; radio and TV PSAs; T-shirts; special scripting of soap operas	1st campaign--increase in percent who walked for exercise (70% to 74%), greatest impact on 50+ age group (twofold increase in reported walking not significant) 2nd campaign-small declines in reported walking and in intentions to be more active
Brownell, Stunkard, Albaum (1980)	Study 1: 8 week quasi-experimental	None specified	21,091 general public observations at a mall, train station, bus terminal	I: Sign reading "Your heart needs exercise-- here's your chance"	Number of people using the stairs increased from 5% to 14% when sign was up. Use declined to 7% when, sign was removed
	Study 2: 4 month quasi-experimental	None specified	24,603 general public observations at a train station	I: Sign reading "Your heart needs exercise- here's your chance"	Number of people using the stairs increased from 12% to 18%; effect remained for 1 month after sign was removed
Blamey, Mutrie, Aitchison (1995)	16 week quasi-experimental	None	22,275 subway users observations	I: Sign reading "Stay Healthy, Save Time, Use the Stairs"	Baseline stair use increased to 15-17% when sign was up; persisted at 12 weeks after sign removal; larger increase among men

Key:
I = intervention; C = control or comparison group.

Adapted from:
U. S. Department of Health and Human Services. (1996). *Physical activity and health: A report of the surgeon general.* Atlanta, GA: U. S. Department of Health and Human Services.